

**UNITED STATES DISTRICT COURT
SOUTHERN DISTRICT OF NEW YORK**

ARISTA RECORDS LLC, ATLANTIC
RECORDING CORPORATION, CAPITOL
RECORDS, LLC, ELEKTRA ENTERTAINMENT
GROUP INC., LAFACE RECORDS LLC, SONY
MUSIC ENTERTAINMENT, UMG RECORDINGS,
INC., WARNER BROS. RECORDS INC.,
WARNER MUSIC GROUP CORP., and
ZOMBA RECORDING LLC,

Plaintiffs,

v.

VITA TKACH and DOES 1-10, D/B/A
GROOVESHARK.IO and GROOVESHARK.PW,

Defendants.

CIVIL ACTION
NO. 15-CV-03701

DECLARATION OF IAN T. FOSTER

I, Ian T. Foster, declare as follows:

1. I am the Arthur Holly Compton Distinguished Service Professor of Computer Science at the University of Chicago. I am also a Distinguished Fellow and Senior Scientist in the Mathematics and Computer Science Division at Argonne National Laboratory and the Director of the Computation Institute, a joint initiative of the Laboratory and University. My areas of research and expertise span a range of topics in parallel, distributed, and data-intensive computing, including the Domain Name System (“DNS”), with which I, like most in my field, have extensive experience. A more complete summary of my background and credentials is available at <http://bit.ly/1FtVT1r>.

2. At the request of Plaintiffs’ counsel, I have reviewed the two declarations of Ólafur Guðmundsson submitted in support of CloudFlare’s opposition to the Plaintiffs’ Application for a Supplemental Order, as well as CloudFlare’s Opposition brief, Plaintiffs’ Reply Brief, and CloudFlare’s Sur-Reply. Plaintiffs’ counsel has requested that I provide my impressions of these submissions, which I summarize briefly below. I am being compensated for my work in connection with this matter at my standard rate of \$600 per hour. My right to compensation is not contingent on the result of this litigation.¹

3. My overall impression is that Plaintiffs and Mr. Guðmundsson are in agreement as to how the Internet, the DNS system and CloudFlare work, although certain statements in Mr. Guðmundsson’s declarations require clarification to avoid misunderstanding.

4. Much of Mr. Guðmundsson’s declarations is devoted to the point that the Defendants in this case, like any website operator, could choose to employ authoritative

¹ Among other engagements, I previously submitted an expert report, dated March 3, 2015, in litigation involving the original Grooveshark music streaming service, captioned *Arista Music, et al. v. Escape Media Group Inc., et al.*, 11 Civ. 8407 (TPG) (S.D.N.Y.).

nameservers provided by someone other than CloudFlare, including nameservers that Defendants owned and operated themselves. While this is a true statement, it does not mean that, in the event of a deconfiguration of “grooveshark.li” on CloudFlare’s nameservers, such alternative nameservers would automatically be employed in the place of CloudFlare’s nameservers. To use new authoritative nameservers, Defendants must add the names of those nameservers to a record maintained by the registrar for grooveshark.li. As long as this record designates CloudFlare’s nameservers as the authoritative nameservers (as it currently does), CloudFlare’s nameservers will continue to be delegated the function of specifying the authoritative IP address for the website in response to DNS queries. This means that, unless and until Defendants designate different authoritative nameservers with their registrar, a deconfiguration of “grooveshark.li” on the CloudFlare nameservers would yield no or bad data in response to a DNS query, in which case a user relying on the query would not be able to find the website’s IP address, and thus communicate with it, based on the site’s domain name.²

5. Mr. Guðmundsson notes in his second declaration (at ¶4(b)) that, even in the event of such a deconfiguration by CloudFlare, the website would still be available by “direct navigation to the website’s Internet Protocol address.” While technically true in some cases, direct navigation to websites based on their IP addresses is extremely uncommon, as it requires the user to know the full numerical string of the IP address at the outset. The DNS system exists precisely because it is easier for humans to memorize a domain name than its corresponding numerical IP address.

² A DNS query may be answered by a recursive nameserver that maintains a cached record of the old IP address for the domain, but such cached records are maintained typically for only minutes, and at most 24 to 48 hours. Once the cached record has expired, the authoritative nameserver will be consulted for the website’s IP address.

6. CloudFlare asserts in its Sur-Reply (at page 2) that “Defendants likely already have systems in place to automatically switch authoritative DNS providers if CloudFlare stops providing services, eliminating the need for Defendants to intervene at all.” Mr. Guðmundsson’s declarations do not support such a statement, however, nor do I believe CloudFlare’s assertion to be grounded in fact. While Mr. Guðmundsson states in his second declaration (at ¶4(d)) that “[w]ebsite owners often have backup DNS systems in place,” I take this statement to refer only to the common practice of designating two or more authoritative nameservers for a website as a failsafe. In the case of grooveshark.li, for example, the official record as maintained by the registrar shows two authoritative nameservers, both of which are provided by CloudFlare. I am unaware of any practice by which such a record can be changed automatically with a registrar to designate new authoritative nameservers in the event of a failure of the existing nameservers. Such new designation requires some action by the website operator.

7. I also note that much of the discussion of authoritative nameservers in this matter appears to be beside the more fundamental point that, regardless of how easy it may be for the Defendants to use authoritative nameservers other than CloudFlare’s, CloudFlare currently provides those nameservers for the website at issue here, and it does so in order to provide the website with CloudFlare’s core services of website optimization and security.

I declare under penalty of perjury that the foregoing is true and correct.

Executed this 3rd day of June, 2015 at Chicago, Illinois.



Ian T. Foster